Mathematics	Intent: To extend the core concepts met in Years 7 and 8, providing a strong foundation for the most challenging concepts in Years 10 and 11.				
Year 9	**Number**	**Algebra**	**Geometry**	**Ratio & Proportion**	**Statistics & Probability**
Knowledge (facts, information, concepts and key terminology)	Rounding and bounds, negative numbers, indices, decimals, standard form, factors and multiples, calculations with fractions.	Expanding and simplifying expressions, factorising into one and two brackets, substitution, solving linear and quadratic equations and inequalities, sequences, straight line graphs, simultaneous equations.	Angle properties, area and perimeter of 2D shapes, circles, 3D shapes including prisms, pyramids, cones and spheres, Pythagoras' Theorem, trigonometry.	Using ratios, ratios as fractions, dividing into ratios, ratios and linear functions, percentages of amounts, percentage change, reverse percentages.	Theoretical and experimental probability, mutually exclusive and independent events, two-way tables, frequency trees, venn diagrams, tree diagrams.
Understanding (ability to connect and synthesise knowledge within a context)	The transferability of numerical concepts. Students will appreciate that many different contexts can still follow the same procedure.	That numerical methods can be generalised into abstract concepts. Algebra follows the same principles as numerical calculations.	The unique properties of 2D and 3D shapes. Core relationships that interlink right-angled triangles, namely lengths and/or angles.	The equivalence between fractions, decimals, percentages and ratios. How bar models and ratio tables can support learning in order to simplify problems when necessary.	Despite probability being a product of randomness, there is a theoretical approach to calculating chance. Learners will understand the different contexts to probabilities and the diagrams associated.
Skills (successful application of knowledge and understanding to a specific task)	Apply foundational knowledge of the number system to answer a variety of questions using the most efficient method. Transfer numerical calculations to other areas of mathematics.	Translate concrete problems into abstract questions and follow procedures to solve generalised problems.	Identify the appropriate technique to find missing information related to shapes. Use combination of topic areas to solve more challenging problems.	Fluently interchange between fractions, decimals, percentages and ratios in order to answer challenging questions based upon the most efficient method. Apply knowledge to contextual problems.	Apply the appropriate method to answer different types of questions. Evaluate the likelihood of outcomes based upon calculations. Use mathematics to make sensible predictions.
Formal Assessments (those done by all/vast majority of the cohort)	Termly cumulative assessments covering content from start of year 7. Topic Assessments after each topic has been delivered.				
By the end of the year students on course for at least a grade 5 will… be proficient in fundamental procedures and have a strong understanding of core concepts in number, algebra, geometry, ratio and proportion, and statistics and probability.					

The timings and order of delivery shown are approximate, these may change on a class-by-class basis

Term 1

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Basic Number	14, 37,46
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Basic Decimals	46, 73, 74, 52, 149
	47, 48, 49, 50
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Standard Form	15, 16, 121
	122, 123, 124, 133, 128
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Basic Algebra	24, 44, 120, 150
	151, 152, 153
	156, 157, 158, 160, 161
	168, 169
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Factors and Multiples	27, 28, 31, 33, 34, 36
	29, 30, 32, 35
Ratio and Proportion	329, 330
	332, 333, 334
	339, 340, 341

Term 2

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	178, 179, 180, 183
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	270, 271
Sequences	196, 197
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Angles	455 - 461
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Introduction to Perimeter and Area	554, 557, 548, 549, 550
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	830, 584, 585

Term 3

Overview	Hegarty Reference
Introduction to Circumference and Area	534, 535
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	536, 537, 538, 541, 542, 543
Further Circumference and Area	544, 545, 546, 547
	586, 587, 588
Basic Percentages	81
	75, 76
	82, 83
	84, 85, 86
Scale Diagrams and Bearings	864-868
	492-495
Pythagoras' Theorem	498
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	501, 502, 503, 504
Introduction to Trigonometry	508, 509, 510
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Coordinates and Linear Graphs	199, 200
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